

**STUDY OF SELECTED
PETROLEUM REFINING RESIDUALS

INDUSTRY STUDY**

Part 1

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1.0 INTRODUCTION

1.1 BACKGROUND

The U.S. Environmental Protection Agency (EPA) is directed in section 3001(e)(2) of the Resource Conservation and Recovery Act (RCRA) (42 U.S.C. §6921 (e)(2)) to determine whether to list as hazardous wastes a number of different wastes including those of the petroleum refining industry. A lawsuit by the Environmental Defense Fund (EDF) in 1989 resulted in a consent decree approved by the court, that sets out an extensive series of deadlines for making the listing determinations required by Section 3001 (e)(2). The deadlines include those for making final listing determinations as well as for concluding various related studies or reports on the industries of concern. With respect to the refining industry, the consent decree identifies 14 specific residuals for which the Agency must make listing determinations and an additional 15 residuals for which the Agency must conduct a study. These 29 residuals, subsequently referred to as the Residuals of Concern (RCs), are listed in Table 1.1. As a result of the consent decree, the Agency embarked on a project to determine whether these 29 RCs pose a threat to human health and the environment and to develop a basis for making such a determination. As a result of the preliminary evaluation of the waste subject to the listing determination, EPA proposed a rule in which eleven wastes were not to be listed and three wastes were to be listed as hazardous wastes: K169, K170, and K171 (clarified slurry oil storage tank sediments and/or filter/separation solids from catalytic cracking, catalyst from hydrotreating, and catalyst from hydrotreating, respectively) (60 *FR* 57747, November 20, 1995). The final determination will be issued under the applicable terms of the consent decree. This report is the result of the Agency's study of the remaining 15 residuals.

The Petroleum Refining Industry was previously studied by OSW in the 1980s. This original effort involved sampling and analysis of a number of residuals at 19 sites, distribution of a RCRA §3007 questionnaire to 180 refineries (characterizing the industry as of 1983), and, ultimately, a listing determination effort focused on wastewater treatment sludges, culminating in the promulgation of hazardous waste listings F037 and F038 (respectively, primary and secondary oil/water/solids separation sludges from petroleum refining).

As part of the Agency's current investigation of residuals from petroleum refining, the Agency conducted engineering site visits at 20 refineries to gain an understanding of the present state of the industry. These 20 refineries were randomly selected from the 185 refineries operating in the continental United States in 1992. Familiarization samples of various residuals were collected at 3 of the 20 refineries to obtain data on the nature of the RCs and to identify potential problems with respect to future analysis. The Agency then conducted record sampling and analysis of the RCs. During the record sampling timeframe, an additional 6 facilities were randomly selected to increase sample availability. Approximately 100 record samples were collected and analyzed. Concurrently, the Agency developed, distributed and evaluated a RCRA §3007 survey to the 180 refineries in the U.S.

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